

# WHAT IS CLAIMED IS:

1.A combination lock, comprising:

a housing comprising a plurality of parallel, spaced seats each having a substantially half circular recess thereon, an elongate groove adjacent one  
5 sides of the seats, a cavity at a side in communication with both the groove and the seats, a channel in communication with both outside and the cavity, a pin in the cavity proximate one end of the groove, a receptacle adjacent the pin, and an opening in communication with both the cavity and outside;

a tumbler wheel assembly supported on the recesses and comprising a  
10 plurality of tumbler wheels, a plurality of inner, hollow cylinders each fitted in the tumbler wheel, a bar locked by the cylinders in a locked position, and a flat enlargement at one end adjacent the opening, a first spring put on the bar being compressed between the enlargement and one of the cylinders;

a backup locking assembly disposed in the groove and comprising a  
15 keyhole and a rotatable shaft including a projection having a half circular section protruded from an inner end thereof toward the cavity;

a pivot assembly in the cavity and comprising a hole pivotably put on the pin, a latch having a locking dog at an open end, an engagement member engaged with the flat of the projection in the locked position, a base, a  
20 protrusion on the base, a protuberance extended in a direction perpendicular to that of the protrusion, and a second spring compressed between the protuberance and the receptacle;

a push button secured to the pivot assembly at the hole and comprising a nose at an inner side to urge against the enlargement, and an arm urged  
25 outward by the protrusion for closing the opening in the locked position;

a U-shaped shackle comprising a first leg pivotably fastened at the housing, a second leg, a slot at one end of the second leg, the slot being engaged with

the dog in the locked position;

a cover fitted on the housing; and

an L-shaped resilient member having a horizontal portion fastened at a wall of the backup locking assembly and a vertical portion bent by the dog in the locked position, whereby

5 a correct combination of the tumbler wheels will unlock the bar, and a pressing of the push button will push the enlargement and further compress the first spring, thereby pivoting both the push button and the pivot assembly about the pin, compressing the second spring, disengaging the dog from the slot, and  
10 exerting an elastic force of the energized resilient member on the second leg for pushing the second leg out of the channel for unlocking the lock by returning to the original L-shape thereof; or

a turning of the shaft about 90 degrees by inserting a key into the keyhole will change the flat of the projection engaged with the engagement member in a  
15 first position to the sharp edge of the projection engaged with the engagement member in a second position so as to push the engagement member to pivot the pivot assembly, disengage the dog from the slot, and exert the elastic force of the energized resilient member on the second leg for pushing the second leg out of the channel for unlocking the lock by returning to the original L-shape  
20 thereof.

2.The combination lock of claim 1, wherein the first leg further comprises an outer stop adjacent an end for limiting a pivot angle of the unlocked shackle.

3.The combination lock of claim 1, wherein each of the first and the second springs is a coil spring.